South Ellerbe Wetland Project

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F.A.Q. – Frequently Asked Questions | Proposed South Ellerbe Wetland Project

Why is there a need for this project? What is ultimately driving it?

In January 2011, the Falls Lake Nutrient Management Strategy Rules were adopted by the State of North Carolina. These rules aim to improve water quality in Falls Lake by reducing the amount of pollution coming from stormwater runoff from new and existing development, wastewater treatment plants, and agriculture. The Falls Lake Rules require a reduction in the amount of nitrogen and phosphorus entering the lake. These pollutants are targeted because they cause algae blooms and affect the water quality and uses of the lake. Falls Lake is a major water supply and is used as flood control, a fish and wildlife conservation area, and recreation.

If constructed, this project could eliminate 500 – 1000 pounds of nitrogen annually as well as remove additional pollutants from this heavily developed area of Durham from flowing to Falls Lake. It would require 15 – 25 smaller projects to achieve that same amount of pollution reduction. Additionally, this project would benefit Ellerbe Creek and South Ellerbe Creek by providing flood control, improving aquatic health and reducing pollutants such as zinc, bacteria, sediment, nitrogen, and phosphorus.

How was this site identified for this project?

The City of Durham completed the Ellerbe Creek Watershed Improvement Plan in 2010. This plan was developed to proactively address water quality regulations and to improve the health of the Ellerbe Creek Watershed. To accomplish this goal, the plan assessed current stream and watershed conditions, identified existing water quality problems, evaluated future water quality conditions, and developed a water quality improvement plan to try to enable the City to meet its goals for water quality and watershed health. The plan offered recommendation including identifying 73 potential stormwater control projects throughout Ellerbe Creek. These projects were ranked and prioritized based on water quality benefit, stream protection, cost, community enhancement opportunity, access and implementation issues, public safety, and other considerations. Through this process, the site of the former Duke Diet and Fitness Center was identified as a location for a stormwater control measure.

What is unique about this site?

This site receives stormwater runoff from 485 acres of developed area in Durham. The average drainage area treated by the other stormwater control measures identified in the Ellerbe Creek Watershed Improvement Plan is only 40 acres. Based on size and geographical location of this site, it is estimated that this single wetland project can treat a large area of urban downtown development. The project is estimated to reduce the nitrogen and phosphorus annual loading by 500-1000 pounds.

Why does this site receive so much stormwater runoff?

It is a natural low-point where stormwater runoff collects from the City's drainage system. The property is located in the 100-year floodplain and partially in the floodway where buildings or fill are not normally allowed. The property's location within the floodplain presents a financial and flooding risk for any structural development on-site.

Who currently owns the site?

Duke University currently owns the site.

What is the proposed project and how will it work?

The proposed project is a constructed wetland. Constructed wetlands are built to mimic the functions of natural wetlands. As stormwater flows through the site, wetland microbes, plants, and soil filter pollutants and treat the water through natural ecological processes.

Is a constructed wetland similar to a wet pond?

There are similarities as both devices are designed to treat stormwater runoff to remove pollutants. The most obvious difference is that wet ponds usually have a single large, open pool of water, but constructed wetlands have many

tiered levels of topography with smaller, vegetated open water areas. This allows the wetland to temporarily capture, slow down, and clean the runoff through natural processes.

How long will it take for the wetland to establish vegetation (i.e. to "grow in")?

The wetland will be able to capture and treat stormwater runoff as soon as it is created but, as with any garden, it may take a few seasons of growth for the plants to fully establish and become most effective.

Will the constructed wetland attract nuisance species such as geese or mosquitoes?

As with any natural area, birds and other small wildlife will likely spend time there. Shrubby vegetation such as sedges, rushes, and inkberry along the shore of open water areas will discourage geese. Research by NC State University scientists has shown that proper design and routine maintenance of a constructed wetland helps to establish a balanced ecosystem. Incorporating different types of habitat or 'ecological diversity' into the design helps to support many different types of natural predators such as mosquitofish, dragonflies, frogs, and birds. Regular maintenance will be a priority for ensuring mosquitoes or other pests do not become an issue.

For more information see: http://www.bae.ncsu.edu/stormwater/PublicationFiles/Mosquitoes2005.pdf

Why does the existing building have to be demolished?

The primary reason this constructed wetland will be so effective is its size. If the existing building and adjacent parking area are preserved, the space available for a wetland will be insufficient to treat polluted runoff from the 485 acres that can be treated if the building is removed. If there is a smaller wetland at the site, then it will treat less area, and the economy of scale that comes with the larger treatment system will be lost.

Will any materials from the demolition be salvaged or recycled?

Recycling and reuse of any applicable building or construction materials will be determined at the design phase. Any comments or suggestions will be taken into consideration.

What community amenities are being considered for this project?

The City's intention is for the project to be an amenity to the community. The perimeter of the wetland provides opportunities for functional amenities such as viewing areas, educational signage, benches, and enhancing the connection to existing South Ellerbe Creek Trail. This project would be the largest constructed wetland in our area and can serve as a 'Living Laboratory' and educational opportunity for school and community groups to learn about the benefits of wetlands and aquatic ecology. We are accepting comments on amenities now at any of our public meetings or by contacting the people listed at the top of this FAQ. The project is in a conceptual phase, additional meetings on the project will be held if it moves forward to a design and construction phase.

How much will the project cost to construct? What will annual maintenance costs be?

The project cost is anticipated to be approximately $8 million, including property acquisition. The annual cost of site maintenance will vary depending on the amenities ultimately included in the final design. For planning purposes we are estimating an annual cost of $40,000 to maintain the site. This would include regular trash removal, replanting as necessary, upkeep of amenities, and maintenance of the structural components of the facility.

Is the project being coordinated with other departments?

Yes, the project is being coordinating with the Planning Department, Parks and Recreation Department, Transportation Department, City Manager's Office, Public Works as well as other departments as needed.

What other projects or practices are being considered to meet the Falls Lake Rules?

The City is working with other partners in the watershed on various projects to help improve water quality by using cisterns, permeable pavement, green roofs, stream restorations, residential rain gardens, floating wetlands, algal turf scrubbers, and tree box filters. Other initiatives include fixing leaky sewers, increasing preservation areas, improving landscape and maintenance practices, and studying other sources of nitrogen such as atmospheric deposition. The City is also working with Upper Neuse River Basin Association on a monitoring and modeling project to address concerns for the Existing Development Stage 2 reductions required by the Falls Lake Rules. The wetland project alone will not be adequate to meet the requirements under the Falls Lake Rules Existing Development.

How do I get more information?

Information about the public meetings and other updates are provided at www.DurhamNC.gov/Stormwater. You may also contact the people listed at the top of this sheet. Information on the Falls Lake Nutrient Management Strategy Rules is available at: http://portal.ncdenr.org/web/wq/ps/nps/fallslake. Information on the Upper Neuse River Basin Association is available at: www.unrba.org.